

**Claims:**

1. (Previously presented) A system for monitoring tissue condition comprising:

a housing configured to be implanted between a first tissue and a different second tissue within a patient's body, the housing including a first surface located on a first outer side of the housing configured to rest against the first tissue, and a second surface located on a second outer side of the housing, opposite from the first outer side, configured to rest against the second tissue;

a first sensing system proximate to the first surface configured to sense a physiological property of the first tissue;

a second sensing system proximate to the second surface configured to sense the same physiological property of the second tissue; and

a processing system in communication with the first and second sensing systems configured to compute a difference between the physiological property sensed by the first and second sensing systems.

2-3 (Cancelled).

4. (Withdrawn) The system of claim 1, wherein the physiological property is temperature.

5. (Original) The system of claim 1, wherein the physiological property is oxygenation.

6. (Withdrawn)The system of claim 1, wherein the sensing system includes a system for computing perfusion.

7. (Withdrawn)The system of claim 1, wherein the physiological property is color.

8. (Withdrawn)The system of claim 1, wherein the physiological property is pH.

9. (Withdrawn)The system of claim 1, wherein the physiological property is NADH levels.

10. (Withdrawn)The system of claim 1, wherein the physiological property is prothrombin levels.

11. (Withdrawn)The system of claim 1, wherein the physiological property is biochemical composition.

12. (Withdrawn)The system of claim 1, wherein the sensing system includes a system for computing drug concentrations.

13. (Withdrawn) The system of claim 1, wherein the physiological property is turgidity.

14. (Withdrawn) The system of claim 1, wherein the physiological property is pressure.

15. (Original) The system of claim 1, further including at least one transmitting element configured to deliver energy to the tissue proximate to the first and second surface.

16. (Original) The system of claim 1, comprising a third sensing system configured to sense a second physiological property of tissue proximate to the housing that is different from the physiological property sensed by the first and second sensing systems.

17. (Original) The system of claim 1, wherein at least portions of the first and second sensing systems are embedded within the housing behind material that is optically transparent.

18. (Original) The system of claim 1, wherein the processing system is located within the housing.

19. (Previously presented) The system of claim 1, wherein the processing system is external to the implantable housing.

20. (Original) The system of claim 1, further including an antenna for receiving power.

21. (Original) The system of claim 1, further including an antenna for transmitting signals.

22. (Original) The system of claim 1, further including an antenna for receiving signals.

23. (Original) The system of claim 1, wherein the first and second sensing systems sense temperature and wherein the processing system is configured to compute the difference between the temperatures sensed by the first and second sensing systems.

24. (Original) The system of claim 1, further including a display configured to depict information about the physiological property sensed by the first or second sensing systems.

25. (Original) The system of claim 1, further including a display configured to depict data corresponding to a difference between the physiological property sensed by the first and second sensing systems.

26. (Original) The system of claim 1, wherein the first and second sensing systems include optical fibers.

27. (Original) The system of claim 1, further including an anchor configured to stabilize the position of the device relative to a tissue.

28-61. (Cancelled).

62. (Previously presented) A method of monitoring the condition of a tissue comprising:

receiving information from a first sensing system and a second sensing system, wherein the first and second sensing systems are configured to sense a physiological property of a tissue;

processing information from the first and second sensing systems to compute a difference in information sensed by the first and second sensing systems;

displaying data regarding the difference between the information received from the first and second sensing systems;

positioning an icon representing a device depicted on the display relative

to a depiction of the tissue to indicate the position of the device within the body;  
and

monitoring the information received from the first and second sensing systems to evaluate the condition of the tissue over time.

63-67 (Cancelled).

68. (Previously presented) A method of monitoring the condition of a tissue comprising:

implanting a device within a body in proximity to a tissue to be monitored, wherein the device includes the first sensing system and a second sensing system, wherein the first and second sensing systems are configured to sense a physiological property of tissue;

orienting the device such that the first sensing system senses the physiological property of a first region of a tissue, and the second sensing system senses the same physiological property from a second region of a tissue;

displaying the orientation of the device relative to the first and the second region of the tissue on a display; and

positioning an icon representing a device depicted on the display relative to a depiction of the tissue to indicate the position of the device within the body.

69. (Cancelled).

70. (Previously presented) A method of monitoring the condition of a tissue

comprising:

implanting a device within a body in proximity to tissue to be monitored, wherein the device includes the first sensing system and a second sensing system, wherein the first and second sensing systems are configured to sense a physiological property of tissue;

orienting the device such that the first sensing system senses the physiological property of a first tissue, and the second sensing system senses the same physiological property from a second tissue;

displaying the orientation of the device relative to the first and the second tissue on a display; and

positioning an icon representing a device depicted on the display relative to a depiction of the tissue to indicate the position of the device within the body.

71-74. (Cancelled).

75. (Previously presented) The system of claim 24, wherein the display further configured to depict an icon representing a device on the display relative to a depiction of the tissue to indicate the position of the device within the body.

76. (Previously presented) The system of claim 1, wherein the first and the second sensing systems do not protrude into the first and the second tissues.